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APPLICATION NO.	FILING DATE	FIRST-NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CROWELL, ANNA M

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 11/19/2002

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/740,830

Applicant(s)

PARK, IL RYONG

Examiner

Michelle Crowell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on September 3, 2002 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1 and 6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification for the following claim recitation: "the etch/strip apparatus is a single piece of equipment". Merriam-Webster's Collegiate Dictionary states that the definition of single is consisting of or having only one part, feature, or portion. The specification and Figure 3 show that the invention comprises several pieces of equipment (etch, rinse, strip, transfer, and cleaning stations). On page 6 of the specification, an etch/strip apparatus unified with cleaning equipment is disclosed as the invention. Merriam-Webster's Collegiate Dictionary states that the definition of unitary

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(unified) is characterized by unity, units, or whole. Therefore, specification only supports having plural pieces of equipment connected to create a unified (whole) system.

3. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how the pipe shower functions to prevent the substrate from drying.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3-10, and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by DeOrnellas (U.S. 5,672,239).

6. Referring to Figures 1 and 2, and column 3, lines 7-31, DeOrnellas discloses an integrated processing apparatus comprising two etch modules 20 and 22 (etching line), strip module 24 (stripping line) and rinse module 25 (cleaning line) on the stripping line. Note. Merriam-Webster's Collegiate Dictionary states that, "the word "on" is used as a function word to indicate position in close proximity with". Load lock chamber 16 (loader) holds the wafers before processing and atmospheric cassette module 34 (unloader) holds the wafers after processing. Furthermore, the atmospheric cassette module 34 contains a robotic wafer handling

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system 32 (robot) for transferring wafers from a rinsing (cleaning) module 25 to a atmospheric cassette module 34. The vacuum chamber 26 connected to the load lock chamber 16 uses a robotic wafer handling system 38 (robot) for transferring the wafers to the various modules (etching and stripping). Overall, DeOrnellas discloses a single, integrated system which performs multiple processing functions (etching, cleaning, and stripping) (col. 2, lines 26-30).

After the wafer is etched, a pre-strip rinse step and spin-dry step takes place in the rinse module 25. This prevents corrosion and the oxidizing of residues into insoluble oxides during photoresist stripping. Likewise after the stripping process, the wafer undergoes a final rinse and dry step (col. 4, lines 5-16).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 11, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeOrnellas (U.S. 5,672,239) in view of Toshima (U.S. 6,007,675).

DeOrnellas fails to teach an elevator for conveying the substrate fro the stripping line to the cleaning line.

Referring to Figure 6a and column 21, lines 40-65, Toshima teaches that it is well known to move wafers from a dry-stripping module 6000 to a wet-cleaning module 7000 using a wafer elevator car 1401 of a wafer elevator 1400. This mechanism, like a robot arm or conveyor,

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allows the wafers to proceed to next processing module without interruption. In addition, Toshima teaches having a dry-stripping module and a wet-cleaning module stacked in a single system, which saves space and a wafer exchange step, i.e. time, normally used with linear etch/clean systems. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the apparatus of DeOrnellas with an elevator and a stacked stripping/cleaning system as taught by Toshima. This would allow the wafers to proceed to next processing module without interruption, save time, and reduce the footprint of the equipment.

Response to Arguments

9. Applicant's arguments filed September 3, 2002 have been fully considered but they are not persuasive.

10. Applicant has argued that DeOrnellas fails to disclose an elevator. As stated above, DeOrnellas in view of **Toshima** teaches an etch/strip/cleaning system with an elevator. Toshima specifically discloses the benefits of using an elevator. In addition, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

11. Applicant has argued that the system of DeOrnellas fails to disclose an integrated system that keeps the substrate in one (single) piece of equipment. As stated above, there is no support in the specification for one piece of equipment, therefore this limitation is considered new matter and the corresponding arguments are moot. In addition, in column 2, lines 26-30, DeOrnellas

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discloses a single, integrated, small footprint system which performs multiple processing functions (etching, cleaning, and stripping).

12. Applicant has argued that the unitary nature of the invention compared to the modular structure of DeOrnellas would fail to motivate a person having ordinary skill in the art to utilize any of the teachings of DeOrnellas to produce a claimed embodiment of the invention. Merriam-Webster's Collegiate Dictionary states, that the definition of unitary (unified) is characterized by unity, units, or whole. Therefore, the applicant's specification and the DeOrnellas reference teach having plural pieces of equipment connected to create a unified (whole) system.

13. Applicant has argued that the system of DeOrnellas uses a central robot arm manipulating cassettes between closely proximate modules. Therefore, there is no geometry in DeOrnellas that can incorporate the elevator of Toshima. DeOrnellas in view of **Toshima** teaches an etch/strip/cleaning system with an elevator. Toshima specifically discloses the benefits (smaller footprint, save time) of using an elevator in a strip/clean module stacked within a single system.

In addition, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

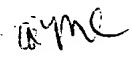
14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (703) 305-1956. The examiner can normally be reached on M-F (8:00 - 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

AMC 
November 15, 2002


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700